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CEC STUDY ON ASBESTOS FIBRE COUNTING STOPPING RULES

Co-ordinated by Institute of Occupational Medicine, Edinburgh.

Counting results from Jacques LeBel (Canada).

I- SUMMARY

We have selected twelve samples collected from workplaces representative of the density range the laboratory generally encounters. The samples have been mounted according to the European Reference Method (ERM) and randomly coded from 1 to 12. All the test counts have been produced by Jacques LeBel using the counting rules of the ERM and the candidate stopping rules. The fibre counts range from 29 f/mm^2 to 328 f/mm^2 with four samples in the range from about 30 to 50 f/mm^2, five samples in the range from about 50 to 100 f/mm^2 and three other samples in the range from about 100 to 330 f/mm^2. The fibre concentrations range from 0.1 to 0.6 fibre/cc. Similar fibre concentrations were found with both counting rules and the use of the candidate rules has taken between one-half to one-third of the time required to count with the ERM counting rules.

II- RESULTS

ANNEX-I. Information on samples.

ANNEX-II. Counting results - 1, 2 and 3.

ANNEX-III. Information on microscope used.

MICROMEDIA

6 pp

ANNEX-I

INFORMATION ON SAMPLES

Sample No.	Sample Volume litres	Effective sample filter area mm^2	Type of fibres if known*
1	300	385	Chrysotile
2	120	385	Chrysotile
3	130	385	Chrysotile
4	120	385	Chrysotile
5	130	385	Chrysotile
6	120	385	Chrysotile
7	130	385	Chrysotile
8	120	385	Chrysotile
9	120	385	Chrysotile
10	130	385	Chrysotile
11	130	385	Chrysotile
12	300	385	Chrysotile

* Type of fibre (if known) should be recorded, e.g. chrysotile, amosite.

ANNEX-II (3 PAGES)

COUNTING RESULTS - 1

Date	Microscopist (initials)	Microscope	Graticule* area (mm^2)	Sample Number	Counting rule	Counting result				
						No. of fibres	No. of fields	Time** min	Time** secs	Sample density fibres/mm^2
10-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	1	1, ERM	108	45	8	5	306
10-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	2	1, ERM	55½	100	10	20	71
10-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	3	1, ERM	56½	100	10	5	72
10-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	7	2, Candidate	24½	50	4	25	62
10-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	8	2, "	26½	50	4	25	68
10-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	9	2, "	16½	50	3	25	42
11-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	4	2, Candidate	15	50	3	25	38
11-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	5	2, "	12	50	3	0	31
11-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	6	2, "	15	50	3	35	38
11-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	10	1, ERM	42½	100	7	30	54
11-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	11	1, ERM	109½	75	10	10	186
11-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	12	1. ERM	110	70	10	10	200

* Graticule area should be recorded to six significant figures, e.g. 0.007854 mm^2

** Note that the time from starting to count fibres to completion of the counting should be recorded for each sample.

COUNTING RESULTS - 2

Date	Microscopist (initials)	Microscope	Graticule* area (mm^2)	Sample Number	Counting rule	Counting result				
						No. of fibres	No. of fields	Time** min	Time** secs	Sample density fibres/mm^2
13-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	7	1, ERM	62	100	9	0	79
13-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	8	1, ERM	63½	100	9	10	81
13-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	9	1, ERM	36½	100	7	45	46
13-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	1	2, Candidate	116	45	8	30	328
13-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	2	2, "	27	50	4	10	69
13-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	3	2, "	29	50	4	15	74
14-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	10	1, ERM	44	100	7	10	56
14-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	11	1, ERM	113	75	10	5	192
14-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	12	1, ERM	112½	75	10	10	191
14-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	4	2, Candidate	14½	50	3	35	37
14-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	5	2, "	11½	50	3	5	29
14-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	6	2, "	16	50	3	35	41

* Graticule area should be recorded to six significant figures, e.g. 0.007854 mm^2

** Note that the time from starting to count fibres to completion of the counting should be recorded for each sample.

COUNTING RESULTS - 3

Date	Microscopist (initials)	Microscope	Graticule* area (mm^2)	Sample Number	Counting rule	Counting result				
						No. of fibres	No. of fields	Time** min	Time** secs	Sample density fibres/mm^2
15-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	2	1, ERM	49	100	9	50	62
15-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	6	1, ERM	38	100	9	10	48
15-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	9	2, Candidate	$14\frac{1}{2}$	50	3	5	37
15-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	12	2, Candidate	$68\frac{1}{2}$	50	5	45	175
16-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	2	2, Candidate	$26\frac{1}{2}$	50	3	40	68
16-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	6	2, Candidate	$15\frac{1}{2}$	50	3	35	39
16-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	9	1, ERM	30	100	7	25	38
16-07-87	J.L.	Bausch & Lomb BBT 252	0.007854	12	1, ERM	$104\frac{1}{2}$	75	9	55	177

* Graticule area should be recorded to six significant figures, e.g. 0.007854 mm^2

** Note that the time from starting to count fibres to completion of the counting should be recorded for each sample.

ANNEX-III

INFORMATION ON MICROSCOPE USED

Please record a brief description of the microscope used for the test. All the counts should be produced by one microscopist using one microscope. If for some reason this is not possible, please record details of each microscope used.

Make	Magnification				Objective numerical aperture	Eyepiece graticule type	Test slide if used †		Other
	eyepiece	objective	body	total			type	performance	
Bausch & Lomb	10X	40X	-	400X	0.65	Walton & Becket	HSE NPL	Set #4	

† e.g. HSE/NPL Mark 2 test slide, 5 sets of lines